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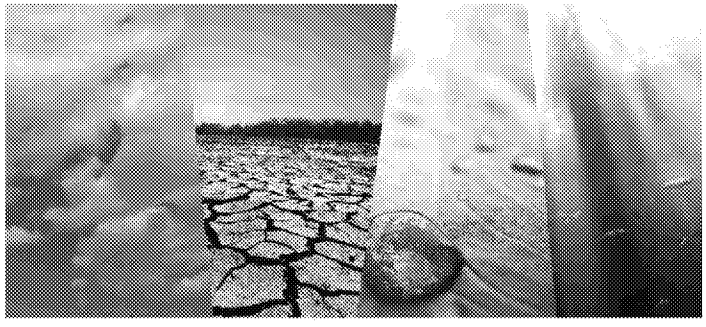
WORK ORDER NUMBER: 16-08-0626

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Beta Offshore

Client Project Name: Weekly NPDES Produced Water Monitoring

Attention: Diana Lang
111 W. Ocean Blvd., Suite 1240
Long Beach, CA 90802-4633

Nicole Scott

Approved for release on 08/11/2016 by:
Nicole Scott
Project Manager

ResultLink ▸

Email your PM ▸

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Contents

Client Project Name: Weekly NPDES Produced Water Monitoring
Work Order Number: 16-08-0626

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Work Order Narrative

Work Order: 16-08-0626 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 08/09/16. They were assigned to Work Order 16-08-0626.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Return to Contents

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Analytical Report

Beta Offshore
111 W. Ocean Blvd., Suite 1240
Long Beach, CA 90802-4633

Date Received: 08/09/16
Work Order: 16-08-0626
Preparation: N/A
Method: EPA 1664A
Units: mg/L

Project: Weekly NPDES Produced Water Monitoring

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
NPDES Prod. Water	**16-08-0626-1-A**	**08/09/16 02:38**	**Aqueous**	**N/A**	**08/10/16**	**08/10/16 13:40**	**G0810HEML2**

Parameter	Result	RL	DF	Qualifiers
HEM: Oil and Grease	15300	1000	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-05-119-4395**	**N/A**	**Aqueous**	**N/A**	**08/10/16**	**08/10/16 13:40**	**G0810HEML2**

Parameter	Result	RL	DF	Qualifiers
HEM: Oil and Grease	ND	1.0	1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

Beta Offshore	Date Received:	08/09/16
111 W. Ocean Blvd., Suite 1240	Work Order:	16-08-0626
Long Beach, CA 90802-4633	Preparation:	N/A
	Method:	EPA 200.8
	Units:	mg/L

Project: Weekly NPDES Produced Water Monitoring

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
NPDES Prod. Water	**16-08-0626-1-A**	**08/09/16 02:38**	**Aqueous**	**ICP/MS 03**	**08/10/16**	**08/10/16 18:28**	**160810LA1**

Parameter	Result	RL	DF	Qualifiers
Zinc	0.0610	0.00500	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-16-094-1443**	**N/A**	**Aqueous**	**ICP/MS 03**	**08/10/16**	**08/10/16 18:31**	**160810LA1**

Parameter	Result	RL	DF	Qualifiers
Zinc	ND	0.00500	1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

Beta Offshore	Date Received:	08/09/16
111 W. Ocean Blvd., Suite 1240	Work Order:	16-08-0626
Long Beach, CA 90802-4633	Preparation:	Filtered
	Method:	EPA 200.8
Project: Weekly NPDES Produced Water Monitoring		Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
16-08-0668-1	**Sample**	**Aqueous**	**ICP/MS 03**	**08/10/16**	**08/10/16 18:41**	**160810SA1**
16-08-0668-1	**Matrix Spike**	**Aqueous**	**ICP/MS 03**	**08/10/16**	**08/10/16 18:36**	**160810SA1**
16-08-0668-1	**Matrix Spike Duplicate**	**Aqueous**	**ICP/MS 03**	**08/10/16**	**08/10/16 18:39**	**160810SA1**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Zinc	0.06396	0.1000	0.1892	125	0.1726	109	80-120	9	0-20	3

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

Beta Offshore	Date Received: 08/09/16
111 W. Ocean Blvd., Suite 1240	Work Order: 16-08-0626
Long Beach, CA 90802-4633	Preparation: N/A
	Method: EPA 1664A
Project: Weekly NPDES Produced Water Monitoring	Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-05-119-4395	**LCS**	**Aqueous**	**N/A**	**08/10/16**	**08/10/16 13:40**	**G0810HEML2**
099-05-119-4395	**LCSD**	**Aqueous**	**N/A**	**08/10/16**	**08/10/16 13:40**	**G0810HEML2**

Parameter	LCS Spike	LCS Conc.	LCS %Rec.	LCSD Spike	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM: Oil and Grease	40.00	32.50	81	40.00	35.20	88	78-114	8	0-18	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

Beta Offshore		Date Received:	08/09/16
111 W. Ocean Blvd., Suite 1240		Work Order:	16-08-0626
Long Beach, CA 90802-4633		Preparation:	N/A
		Method:	EPA 200.8
Project: Weekly NPDES Produced Water Monitoring			Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-094-1443	**LCS**	**Aqueous**	**ICP/MS 03**	**08/10/16**	**08/10/16 18:33**	**160810LA1**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Zinc	0.1000	0.1025	102	80-120	

RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 16-08-0626 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 1664A	N/A	784	N/A	1
EPA 200.8	N/A	598	ICP/MS 03	1

Return to Contents

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Glossary of Terms and Qualifiers

Work Order: 16-08-0626 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

16-08-0626

LTS Environmental Inc. 704 Adirondack Avenue Ventura, CA 93003 805-644-4560	**Report to:** Diana Lang 111 W. Ocean Blvd. Suite 1240 Long Beach, CA. 90802	**Bill to:** Diana Lang APD@memorial.com 111 W. Ocean Blvd. Suite 1240 Long Beach, CA 90802

FACILITY: Platform Elly
SAMPLER NAME: Daniel Pasillas
PROJECT/CHARGE # **Weekly NPDES Produced Water Monitoring**
RESULTS REQUIRED: **48 hr RUSH**
RESULTS BY: PHONE: _____ E-MAIL X mrobertson@betaoffshore.com

SUBMITTED TO: Eurofins (Calscience) PHONE: 714-895-5494
REPORT TO: Diana Lang PHONE: 562 628.1529
COPIES TO: Diana Lang PHONE: 562 522-5095
lawrylts@sbcglobal.net PHONE: 805-644-4560
704 Adirondack, Ventura, CA 93003

SAMPLE NO.	SAMPLE ID	GRAB/ COMP.	VOLUME	DATE/TIME COLLECTED	PRESERV.	ANALYSES REQUESTED (METHOD)
1	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	**Oil & Grease (EPA 1664)** + Zn (EPA 200.8)
2	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	**Oil & Grease (EPA 1664)** **Hold**
3	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	**Oil & Grease (EPA 1664)** **Hold**
4	NPDES Prod.Water	grab	1 L amber	8-9-16 02:38	H2SO4	**Oil & Grease (EPA 1664)** **Hold**
	Caution to Sample Collector: *All sample bottles contain a concentrated* ***acid*** *preservative.*					
	Use proper PPE including gloves and goggles when collecting the samples.					

To Lab: ***For Samples 1-4: Analyze Sample #1 only - hold other samples until further notice.***

Relinquished by:	Daniel Pasillas	Date:	8-9-16
Received by:	Diana Lang	Time:	11:50 am
Relinquished by:	Diana Lang	Date:	1:00 pm
Received by:	[signature] ELL	Time:	8-9-16

Relinquished by:	[signature]	Date:	8/9/16
Received by:	[signature]	Time:	1440
Relinquished by:		Date:	
Received by:		Time:	

ED_006322_00000089-00011

Return to Contents

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WORK ORDER NUMBER: 16-08- 0826

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: LTS ENVIRONMENTAL INC.

DATE: 08 / 9 / 2016

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2A (CF: 0.0°C); Temperature (w/o CF): 2.4 °C (w/ CF): 2.4 °C; ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: 676

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 676

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 1052

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☑	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☑ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (_____) ☐ EnCores® (_____) ☐ TerraCores® (_____) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: 1052

Reviewed by: 676

2015-04-10 Revision

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WORK ORDER NUMBER: 16-08- 0626

SAMPLE ANOMALY REPORT

DATE: 08 / 9 / 2016

SAMPLES, CONTAINERS, AND LABELS:

- ☐ Sample(s) NOT RECEIVED but listed on COC
- ☐ Sample(s) received but NOT LISTED on COC
- ☐ Holding time expired (list client or ECI sample ID and analysis)
- ☐ Insufficient sample amount for requested analysis (list analysis)
- ☐ Improper container(s) used (list analysis)
- ☐ Improper preservative used (list analysis)
- ☐ No preservative noted on COC or label (list analysis and notify lab)
- ☐ Sample container(s) not labeled
- ☐ Client sample label(s) illegible (list container type and analysis)
- ☑ Client sample label(s) do not match COC (comment)
  - ☐ Project information
  - ☐ Client sample ID
  - ☐ Sampling date and/or time
  - ☐ Number of container(s)
  - ☑ Requested analysis
- ☐ Sample container(s) compromised (comment)
  - ☐ Broken
  - ☐ Water present in sample container
- ☐ Air sample container(s) compromised (comment)
  - ☐ Flat
  - ☐ Very low in volume
  - ☐ Leaking (not transferred; duplicate bag submitted)
  - ☐ Leaking (transferred into ECI Tedlar™ bags*)
  - ☐ Leaking (transferred into client's Tedlar™ bags*)

* Transferred at client's request.

Comments

(-1) Received 1-Liter amber glass bottle w/ H_2SO_4 for all analytes. (Metals container not received).

MISCELLANEOUS: (Describe)

Comments

HEADSPACE:

(Containers with bubble > 6 mm or ¼ inch for volatile organic or dissolved gas analysis)

ECI Sample ID	ECI Container ID	Total Number**	ECI Sample ID	ECI Container ID	Total Number**

(Containers with bubble for other analysis)

ECI Sample ID	ECI Container ID	Total Number**	Requested Analysis

Comments: _____

Reported by: 1053

Reviewed by: 659

** Record the total number of containers (i.e., vials or bottles) for the affected sample.

2015-03-16 Revision